

WHAT IS CLAIMED:

1. A quick attachment device for placing one or more diode light sources into position for repeatable testing, the device comprising:
 - a quick attachment module whose location is fixed with respect to the repeatable testing position, the quick disconnect assembly including
 - 5 a quick disconnect hinge, and
 - two locating pins; and
 - a mounting assembly on which the diode light sources are mounted during testing, the mounting assembly being operably connected to the quick disconnect hinge to move the diode light sources into and out of the repeatable testing position, the mounting assembly including a thermo-electric cooling device operable to cool the diode light sources,
 - 10 wherein the mounting assembly is configured to receive the locating pins in a locational transition (LT) fit connection when the diode light sources are moved into the repeatable testing position.
- 15 2. The device of claim 1, wherein the mounting assembly includes a thermally insulating module including two slots, each slot being configured to receive a corresponding one of the locating pins in an LT fit connection when the diode light sources are moved into repeatable testing position.
- 20 3. The device of claim 2, wherein the thermally insulating module is comprised of two modular wear blocks, the modular wear blocks comprising a thermally insulating material, each of the modular wear blocks including a corresponding one of the slots.
- 25 4. The device of claim 1, further comprising:
 - a thermistor configured to detect a temperature of the mounting assembly, wherein the thermo-electric cooling device is controlled based on the detected temperature.

5. The device of claim 4, wherein the thermo-electric cooling device is configured to maintain each of the diode light sources at a junction temperature during testing.
6. The device of claim 1, wherein the mounting assembly includes,
5 a heat sink configured to dissipate heat for a mounting plate in the mounting assembly, the diode light sources being mounted on the mounting plate.
7. The device of claim 6, wherein the mounting assembly includes, an electric fan operably connected to the heat sink.
- 10 8. The device of claim 1, wherein
the quick attachment module includes a fastening mechanism, and
the mounting assembly includes a fastener configured to engage
with the fastening mechanism when the diode light sources are moved
into repeatable testing position.
- 15 9. The device of claim 8, wherein
the fastening mechanism comprises a second quick disconnect
hinge.
10. The device of claim 1, wherein the mounting assembly includes a
mounting plate on which the diode light sources are mounted, the thermo-
20 electric cooling device being controlled based on the temperature of the
mounting plate.
11. The device of claim 10, further comprising:
a heat sink operably connected to the diode light sources and the
mounting plate, the heat sink being configured to transfer heat generated
25 at the diode light sources during testing to the mounting plate.
12. The device of claim 11, further comprising:

a thermistor operably configured to detect the temperature of the mounting plate and output a signal for controlling the thermo-electric cooling device.

5 13. The device of claim 10, wherein the mounting assembly includes, a low-conductive plate configured to electrically insulate electrical pathways of the diode light sources from the quick attachment module during testing, the electrical pathways operable to provide power to the diode light sources.

10 14. The device of claim 13, the diode light sources having a solder pad configuration, wherein the low-conductive plate is a printed circuit board (PCB) card configured to provide the electrically insulated electrical pathways from solder pads of the diode light sources to a power supply.

15 15. The device of claim 13, wherein the electrical pathways include at least one of connectors or pins of the diode light sources connected to a power supply.

16. The device of claim 1, wherein the quick attachment module is mounted on an integrating sphere, the repeatable testing position being within the integrating sphere.

20 17. The device of claim 16, the mounting assembly including a low-conductive plate configured to electrically insulate electrical pathways of the diode light device from the quick attachment module during testing, wherein a surface of the low-conductive plate facing the interior of the integrating sphere during testing is operable to reflect light emitted by the diode light sources.

25 18. The device of claim 1, wherein the diode light sources comprise one or more light-emitting diodes (LEDs) configured to emit at least one of visible, infrared (IR), and ultraviolet (UV) light.

19. The device of claim 1, wherein the diode light sources comprise at least one of infrared (IR) diodes, ultraviolet (UV) diodes, and laser diodes.

20. A power supply device for providing power to a surface-mounted diode light source equipped with solder pads, the power supply device
5 comprising:

a substrate configured to electrically insulate the diode light source, the low-conductive card including,

solder pad contacts configured to adapt to a relative height differential of the solder pads of the diode light source in order to maintain
10 contact with the solder pads, and

electrically-insulated electrical pathways connecting the solder pad contacts to an external power source connector.

21. The device of claim 20, wherein

the substrate includes flexible tabs, each of the solder pad contacts
15 being disposed on a corresponding one of the tabs, and

each tab being operable to displace the corresponding solder pad contact with spring-loaded tension so that the solder pad is displaced a suitable distance for maintaining contact with the corresponding solder pad of the diode light source.

22. The device of claim 20, wherein the substrate is comprised of a semiconductor material.

23. The device of claim 22, wherein the semiconductor substrate is multilayered, the electrical pathways being disposed in an internal layer of the multilayered substrate.

24. The device of claim 20, wherein the substrate is comprised of a non-conducting material.

25. The device of claim 20, wherein the electrical pathways are covered with an insulating electrical tape.

26. The device of claim 20, wherein the substrate is fastened to a mounting plate of the diode light source.

27. The device of claim 20, wherein the solder pad contacts are soldered to the solder pads to provide permanent connections.

5 28. A quick attachment device in which the power supply device of claim 20 is implemented, the quick attachment device being configured to place and secure the diode light source into position for repeatable testing, the quick attachment device including,

10 a quick attachment module whose location is fixed with respect to the testing position, the quick attachment module including a quick disconnect hinge; and

15 a mounting assembly to which the diode light source and power supply device is affixed during testing, the mounting assembly being operably connected to the quick disconnect hinge to move the diode light source into and out of the repeatable testing position, the mounting assembly being configured to provide a locational transition fit connection with the quick attachment module to secure the diode light source into the testing position,

20 wherein the power supply device is configured to electrically insulate components of the diode light source from the quick attachment module.

29. The device of claim 20, wherein the diode light source includes a light-emitting diode (LED) configured to emit at least one of visible, infrared (IR), and ultraviolet (UV) light.

25 30. The device of claim 20, wherein the diode light source includes at least one of an infrared (IR) diode, ultraviolet (UV) diode, and laser diode.